

CLAIMS

I claim:

1. An knee orthosis, comprising:
a medial tracking member that operatively fits along a lateral side of, and provides medial traction to, a patella having patellofemoral articular tissue; and
an inward tracking member that operatively fits over, and provides inward pressure against, the patella;
wherein the inward tracking member provides a compressive force against the patella, thereby increasing the contact surface area between the patellofemoral articular tissue and an associated femoral trochlear groove.
2. The knee orthosis of claim 1 wherein the inward pressure is applied through an intermittent and progressively increased tightening of the inward tracking member.
3. The knee orthosis of claim 1 wherein the inward tracking member directly overlays the patella and the medial tracking member so that medial traction can be placed on the patella.
4. The knee orthosis of claim 1 wherein the medial tracking member is adjustable to increase or decrease an amount of medial traction.
5. The knee orthosis of claim 1 wherein the inward tracking member is adjustable to increase or decrease an amount of inward pressure.
6. The knee orthosis of claim 1 wherein the inward tracking member provides continuous compressive force against the patella throughout a full range of extension motion of an associated knee.
7. The knee orthosis of claim 6 wherein the continuous compressive force is

substantially the same throughout the extension motion.

8. The knee orthosis of claim 6 wherein the continuous compressive force increases throughout the extension motion.

9. The knee orthosis of claim 1 further comprising a polycentric hinge having an axis that maintains a parallel position with respect to an associated knee throughout a flexion or extension motion of the knee.

10. The knee orthosis of claim 9 wherein the polycentric hinge is bicentric and the inward tracking member is operatively attached to the hinge and aligned substantially perpendicular to the hinge axis.

11. The knee orthosis of claim 10 wherein the inward tracking member is mounted on the hinge, or operatively loops through a ring that is aligned parallel to the hinge axis.

12. The knee orthosis of claim 1 further comprising an elastic, breathable sleeve having attachment positions for anchoring and adjusting the medial tracking member and the inward tracking member.

13. The knee orthosis of claim 1 wherein the medial tracking member comprises a synthetic tube that is covered with an elastic material, a raised spacing member, or a raised extension member.

14. The knee orthosis of claim 1 wherein the inward tracking member comprises an elastic, adjustable strap.

15. An knee orthosis, comprising:
an inward tracking member that operatively fits over, and provides inward pressure against, a patella having patellofemoral articular tissue;
wherein the inward tracking member provides a compressive force against

the patella, thereby increasing the contact surface area between the patellofemoral articular tissue and an associated femoral trochlear groove.

16. The knee orthosis of claim 15 wherein the inward pressure is applied through an intermittent and progressively increased tightening of the inward tracking member.

17. The knee orthosis of claim 15 wherein the inward tracking member directly overlays the patella and a medial tracking member so that medial traction can be placed on the patella.

18. The knee orthosis of claim 15 wherein the medial tracking member is adjustable to increase or decrease an amount of medial traction.

19. The knee orthosis of claim 15 wherein the inward tracking member is adjustable to increase or decrease an amount of inward pressure.

20. The knee orthosis of claim 15 wherein the inward tracking member provides continuous compressive force against the patella throughout a full range of extension motion of an associated knee.

21. The knee orthosis of claim 15 wherein the continuous compressive force is substantially the same throughout the extension motion.

22. The knee orthosis of claim 15 further comprising a polycentric hinge having an axis that maintains a parallel position with respect to an associated knee throughout a flexion or extension motion of the knee.

23. The knee orthosis of claim 22 wherein the polycentric hinge is bicentric and the inward tracking member is operatively attached to the hinge and aligned substantially perpendicular to the hinge axis.

24. The knee orthosis of claim 23 wherein the inward tracking member is mounted on the hinge, or operatively loops through a ring that is aligned parallel to the hinge axis.

25. The knee orthosis of claim 15 further comprising an elastic, breathable sleeve having attachment positions for anchoring and adjusting a medial tracking member and the inward tracking member.

26. The knee orthosis of claim 15 wherein the inward tracking member comprises an elastic strap.

27. An orthotic method for tracking a patella, comprising:
applying a medial tracking member that operatively fits along a lateral side of, and provides medial traction to, a patella having patellofemoral articular tissue; and
applying an inward tracking member that operatively fits over, and provides inward pressure against, the patella;
wherein the inward tracking member provides a compressive force against the patella, thereby increasing the contact surface area between the patellofemoral articular tissue and an associated femoral trochlear groove.

28. The method of claim 27 wherein the inward pressure is applied through an intermittent and progressively increased tightening of the inward tracking member.

29. The method of claim 28 wherein the medial traction applied through the intermittent and progressively increased tightening of the inward tracking member increasingly stretches lateral patellar connective tissue over time.